MODIS Vegetation Indices: The Normalized Difference Vegetation Index (NDVI) and an Enhanced, Modified Vegetation Index (MVI)

Product Description

The MODIS vegetation indices (VIs) will provide consistent spatial and temporal comparisons of global vegetation conditions which will be used to monitor the Earth's photosynthetic vegetation activity for phenologic, change detection, and biophysical interpretations. The VIs are determined daily and globally for land from MODIS blue, red and near-infrared reflectances (centered at 470 nm, 648 nm, and 858 nm, respectively). Two indices are planned; the NDVI will be a continuity index with the existing NOAA-AVHRR derived NDVI. A modified vegetation index (MVI) uses the blue band to remove residual atmospheric contamination due to smoke and sub-pixel/thin clouds, and uses a feedback adjustment to minimize canopy background variations and enhance vegetation sensitivity from sparse to dense vegetation conditions. The VIs use atmospherically-corrected (at ~ 50 km resolution) bi-directional surface reflectances masked for water, cloud, and cloud shadow. The NDVI and MVI products are archived at a 250-m pixel resolution, along with the Sun and view angles of each grid cell.

Research & Applications

Vegetation Indices are used for global monitoring of vegetation conditions. The VIs are used as input in the land cover and land cover change products. They also play an important role in the derivation of the FPAR, LAI, and thermal products. The at-launch version will be fully operational.

Data Set Evolution & Applications

Although a global validation scheme has been implemented for the VIs, a thorough evaluation and calibration of these indices will be made at launch.

Suggested Reading

Huete, A., *et al.*, 1994a.

Huete, A., *et al.*, 1994b.

Liu, H.Q. and A.R. Huete, 1995.

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PRODUCT SUMMARY

Coverage:
global land surface (Level 2)

Spatial/Temporal Characteristics:
(Level 2) daily at 250 m

Key Science Applications:
global vegetation monitoring, global biogeochemical and hydrologic modeling, global and regional climate modeling, land cover characterization

Key Geophysical Parameters:
vegetation index

Processing Level:
2

Product Type:
standard, at-launch

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